



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,578	05/05/2006	Andre Sloth Eriksen	ASE.001	3450

20987 7590 08/22/2007
VOLENTINE & WHITT PLLC
ONE FREEDOM SQUARE
11951 FREEDOM DRIVE SUITE 1260
RESTON, VA 20190

EXAMINER

WALBERG, TERESA J

ART UNIT	PAPER NUMBER
----------	--------------

3744

MAIL DATE	DELIVERY MODE
-----------	---------------

08/22/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/578,578

Applicant(s)

ERIKSEN, ANDRE SLOTH

Examiner

Teresa J. Walberg

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 70-88 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 70-88 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner:
- 10) ☒ The drawing(s) filed on 05 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/5/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 70-73, 75-84, and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelder (6,019,165) in view of Chu et al (2003/0056939).

Batchelder discloses a cooling system for a computer system processing unit as claimed including an integrated element and a heat radiator (Fig. 2), the integrated element including a heat exchanging interface (at 52), a reservoir (at rotor 54), and a pump (at 56), the reservoir being adapted to receive a cooling liquid from an inlet and pass the cooling liquid to an outlet (Fig. 2), the reservoir including a plurality of channels to direct flow of cooling liquid across the heat exchanging surface, the heat radiator (at 28) being connected between the outlet and the inlet and being adapted to exhaust heat from the cooling liquid, the heat exchanging interface being adapted to provide thermal contact between the processing unit and the cooling liquid (Fig. 2), such that heat is dissipated from the processing unit to the cooling liquid as the cooling liquid passes across the heat exchanging interface, and the pump (56) being adapted to pump cooling liquid through the reservoir and the heat radiator, the pump comprising an impeller (56) magnetically connected with a pump rotor (54), the impeller (54)

being submerged in the cooling liquid and being adapted to communicate the cooling liquid into the plurality of channels (Fig. 2), the impeller disposed in a recess sized in relation to a diameter of the impeller (54) and including a recess inlet and outlet (Fig. 2), the impeller adapted to pass the cooling liquid from the recess inlet, through the recess outlet and into the plurality of channels (Fig. 2), the plurality of channels being integral to the inner surface of the heat exchanging interface (52), the inlet, outlet and pump being disposed proximate the heat exchanging interface and being structurally adapted to generate a turbulent flow of cooling liquid across the heat exchanging interface (Fig. 2), the driving means being further adapted to drive a fan (34) associated with the reservoir and/or the heat radiator.

Batchelder differs from the claimed device in that it does not show the impeller being mechanically integrated with the pump rotor, with the pump being disposed within the reservoir.

Chu et al disclose a cooling system for a computer system (para. 0010) including an impeller (26) mechanically integrated with a pump rotor (16), with the pump being disposed within the reservoir (Fig. 1).

It would have been obvious to one of ordinary skill in the art to substitute a mechanically integrated impeller and pump rotor with the pump within the reservoir for the magnetically connected impeller and pump rotor with pump disposed outside of the reservoir of Batchelder, because the substitution of one known element for another would have yielded predictable results to one of

Art Unit: 3744

ordinary skill in the art at the time of the invention (KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385 (2007)).

3. Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelder (6,019,165) in view of Chu et al (2003/0056939) and further in view of Morris et al (6,580,610).

Batchelder in view of Chu et al disclose a cooling system having the claimed structure with the exception of the pump being disposed at least partially outside the reservoir.

Morris et al disclose a cooling system with a pump located outside a reservoir. See Fig. 2.

It would have been obvious to one of ordinary skill in the art to position the pump of Batchelder in view of Chu et al at least partially outside the reservoir, the motivation being to enable easier repair or replacement of the pump.

4. Claims 85, 86, and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelder (6,019,165) in view of Chu et al (2003/0056939) and further in view of Bingler (6,668,911).

Batchelder in view of Chu et al disclose a cooling system having the claimed structure with the exception of the interface comprising a surface of the

Art Unit: 3744

processing unit disposed in direct contact with the cooling liquid, or an element adapted to be separable from the reservoir.

Bingler discloses an interface comprising a surface of a heat source (1) disposed in direct contact with the cooling liquid (Fig. 3), and an element (the heat source 1) adapted to be separable from the reservoir. See Fig. 3.

It would have been obvious to one of ordinary skill in the art in view of Bingler to provide the processing unit of Batchelder in view of Chu et al in direct contact with the liquid in the reservoir, the motivation being increase the amount of heat that could be removed.

5. Claims 87 and 88 are objected to because of the following informalities:

In claim 87, at line 2, it appears that "integrate" should be replaced by either "integrated" or "integral".

Claim 88 depends from cancelled claim 1. It has been assumed for purposes of this action that claim 88 was intended to depend from claim 70.

Appropriate correction is required.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Reichard, Burward-Hoy, Hamilton et al, Roy (6,408,937), Wang, Weber et al, Roy (7,055,581), Niwatsukino et al, and Chou et al are cited to show relevant cooling system structure.

Art Unit: 3744

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Teresa J. Walberg
Primary Examiner
Art Unit 3744

/tw/